As an example suppose that the economy is divided into two sectors. One sector, accounting for 68% of GNP pays no post-retirement health benefits and its costs per unit of labor are not directly affected by SFAS 106. In the second sector, which accounts for 32% of GNP, SFAS 106 directly increases the cost per unit of labor by 3%, and labor costs account for 64% of total costs. According to the back-of-the-envelope calculation, total costs and prices will increase by 1.92% (64% of 3%) in the second sector, and the overall price index will increase by .614% (32% of 1.92%). However, as we discuss below, this calculation overstates the effect on the overall price level.

Why does the back-of-the-envelope calculation overstate the size of the increase in the overall price level? The introduction of SFAS 106 will increase the cost of labor for employers who offer post-retirement health benefits and this increase in cost will lead to a variety of market adjustments. Although the full scope of market adjustments and their interactions can be complex (as detailed in Appendix C) we can get a simple view of the effects by first examining the effects in the labor market.

Because SFAS 106 increases the labor costs of employers who offer post-retirement health benefits, these employers will demand a smaller amount of labor at any given level of the wage rate. This reduction in the demand for labor will reduce the wage rate (not including post-retirement health benefits) facing all employers. The reduction in the wage rate will reduce labor costs of employers who do not offer post-retirement health benefits. Labor costs of employers who do pay post-retirement health benefits will increase by less than the direct impact of SFAS 106 on labor costs captured in the back-of-the-envelope calculation. With competition forcing prices to stay in line with costs, prices will fall in the sector that does not offer post-retirement health benefits and prices will rise by less than in the back-of-the-envelope calculation for employers who offer post-retirement health benefits. With prices rising in one sector and prices falling in the other sector, the overall price level may change by only a small amount.

Although the overall price level may change very little, the relative price of goods in the two sectors may change substantially to reflect the change in the relative labor costs arising from the differential impact of SFAS 106 on employers who offer post-retirement health benefits and employers who do not offer these benefits. In addition to effects we have already discussed, changes in labor costs arising from SFAS 106 will affect the mix of capital and labor used by employers in different sectors, and resulting changes in the prices of goods will shift demand away from the sector with an increased price toward the sector with a decreased price. The shift in demand will cause a reallocation of resources from one sector to the other. All of these additional adjustments are captured by the macroeconomic model which is used to get a quantitative measure of the impact of SFAS 106 on the prices of goods in each sector as well as on the GNP-PI.

Now let's consider the more realistic scenario in which there is ongoing inflation before the introduction of SFAS 106. Over the long run, the price level is very strongly related to the level of the money supply, and the rate of inflation is very strongly related to the growth rate of the money supply. With ongoing money growth there will be ongoing inflation, and the question is how much SFAS 106 affects the price level compared to the value it would have reached in the absence of SFAS 106. The basic results we presented above still hold, but with a slight re-interpretation: Whenever we said that a price increases, we now mean that it increases relative to the level it would have attained in the absence of SFAS 106; whenever we said that a price or wage decreases, we mean that it decreases relative to the level it would have reached in the absence of SFAS 106. Thus, for example, if we find that in the absence of ongoing inflation, SFAS 106 would reduce the wage by 2%, then in the presence of ongoing inflation of 5% per year, the wage would rise by 3% over the course of the year, so that it ends up 2% below the value it would have attained in the absence of SFAS 106 (if the effects of SFAS 106 were fully realized within one year). Thus, when we report that SFAS 106 causes some prices and wages to fall, we mean only that these prices and wages are lower than they would have been without SFAS 106 -- not necessarily that we will observe actual declines in these prices and wages

between one date and some later date. This focus on the effect of SFAS 106 on prices and wages relative to values they would have reached is the correct focus for analyzing the question at hand: What is the impact of SFAS 106 on the GNP-PI?

We have explained that SFAS 106 will cause some prices to rise and other prices to fall relative to their values in the absence of SFAS 106. To get a quantitative measure of this effect we use a mathematical macroeconomic model.

Modeling Strategy

To study the quantitative impact of SFAS 106 on the GNP-PI we use a mathematical macroeconomic model that incorporates production costs for various goods and national demands for these goods. The impact of SFAS 106 is modeled as a direct increase in the cost of labor of employers who offer post-retirement health benefits, and the solution of the model indicates the ultimate effects on the prices of various goods and on the private sector price index. The model is best viewed as a long-run model that fully incorporates the effects of SFAS 106.

Before constructing a macro model to study the price impact of SFAS 106, it is helpful to list a set of desirable criteria for a macro model that can be used to analyze this question. First, the model should be a multi-sector model because SFAS 106 will have different direct impacts on different sectors. In particular, SFAS 106 will directly increase the cost of labor of employers who offer post-retirement health benefits (which we treat as sector 2), but will have no direct impact on employers who do not offer post-retirement health benefits (which we treat as sector 1).

Second, the model should explain how the costs of production are related to the cost of labor and other inputs. At the same time, the model should allow for the possibility that capital may be substituted for labor when labor becomes more expensive as it does in the SFAS 106 sector, and the model should also allow for the possibility that labor may be substituted for capital when labor becomes less expensive as it does in the sector that does not offer post-retirement health benefits.

Third, the model should provide a specification of the aggregate demand for goods related to the overall price index as well as the demands for the different goods produced in the different sectors. Combining the demand structure with the cost structure will permit calculation of the impact of cost changes in each sector on quantities, and more importantly, on prices. Then the price index can be computed.

Fourth, the model should be tractable so that numerical solutions can be computed and readily interpreted.

Fifth, the model should be internally consistent and based on sound economic foundations.

The criteria listed above for an appropriate model guide our choice of a model. To that end, we have developed a macroeconomic model that draws heavily on the model presented in an article published by two prominent macroeconomists -- Olivier Blanchard of M.I.T. and Nobuhiro Kiyotaki of the University of Wisconsin -- in the September 1987 American Economic Review. This article presents a multi-sector macroeconomic model that explicitly accounts for production and cost conditions as well as aggregate demand. Although the model is economically sophisticated and requires some mathematical manipulation to solve, the basic structure is quite tractable. Finally, the model has the advantage of being based on sound economic principles and is internally consistent.

The precise mathematical structure of our adaptation of the Blanchard-Kiyotaki model is presented in Appendix C. Here we will simply describe the three major components of the model:

(1) the demand for goods;

(2) the production functions;

(3) the supply of labor.

(1) The demand for goods. The model is a two-sector model, which means that there are two types of goods. If the relative prices of the goods are held constant, the demand for goods is proportional to the overall level of aggregate demand which depends on the money supply and the overall price level. Changes in the relative price of the two goods shift demand away from the good with the increased relative price toward the good with the decreased relative price. The degree to which demand is shifted is measured by the price elasticity of demand, which is an input to the model.

(2) The production functions. Each type of good is produced using capital and labor. The amount of output that can be produced with any given combination of capital and labor is determined by a Cobb-Douglas production function. The Cobb-Douglas production function is one of the most widely used production functions in economics. Its most important characteristic is that for a competitive company, the share of labor cost in total cost is constant, regardless of the wage rate or the amount of output produced. In applying the model to the United States we specify particular Cobb-Douglas production functions that match the share of labor cost in total cost in the U.S. economy.

(3) The supply of labor. We have already pointed out that the introduction of SFAS 106 will reduce the demand for labor by firms offering post-retirement health benefits, and as a consequence, will reduce the wage rate relative to the level that would have prevailed in the absence of SFAS 106. The magnitude of the effect on the wage rate depends on the response of labor supply to the change in labor demand. The model characterizes the supply of labor in terms of the elasticity of labor supply with respect to the wage rate which measures the percentage fall in the amount of labor supplied resulting from a 1% fall in the wage rate.

To get quantitative results from the model, we must provide certain inputs to the model. Using these inputs, the mathematical macroeconomic model is solved numerically using a FORTRAN program written specifically for this model. In our baseline calculation we use the following values for the major inputs to the model:

Baseline Parameters

price elasticity of the demand for goods:	1.50
share of labor costs in total cost in sector 1:	0.64
share of labor costs in total cost in sector 2:	0.64
initial fraction of labor employed in sector 2:	0.32
direct impact of SFAS 106 on labor costs in sector 2:	0.03
labor supply elasticity	0.00

The price elasticity of demand of 1.5 is probably too high, but it was chosen because experimentation with the model indicated that the impact of SFAS 106 on the GNP-PI increases when the price elasticity of demand increases. Thus, using a value of 1.5 most likely overstates the impact on the GNP-PI.

The share of labor cost in total cost in each sector was set equal to 0.64 to match the actual share of labor cost in total GNP in the United States.

The value of 0.32 for the fraction of labor employed in sector 2 was chosen to match the fraction of U.S. private sector employees covered by SFAS 106. The macroeconomic model is intended as a model of the private sector, so the share of private sector employment covered by SFAS 106 is used for the fraction of employment in sector 2.

The value of 3% for the direct impact of SFAS 106 on labor costs is indicative of the impact of SFAS 106 on those employers who provide post-retirement medical benefits and was chosen to maintain consistency between TELCO SFAS 106 costs and

those assumed for all other employers who will incur SFAS 106 costs. Specifically this value was developed by multiplying TELCO's increase in labor costs due to SFAS 106 by all of the adjustments except for the Non-Covered Employees Adjustment and the Labor Cost Percentage Adjustment.

Finally, the value of the labor supply elasticity is set equal to zero. Empirical studies of labor supply (summarized in Chapters 1 and 2 of the Handbook of Labor Economics, North-Holland, 1986) typically find that in response to a permanent reduction in the wage rate men will tend to increase their labor supply and women tend to reduce their labor supply. That is, these studies typically find a negative labor supply elasticity for men and a positive labor supply elasticity for women. The model uses a value of the *aggregate* labor supply elasticity, which measures the response of aggregate labor supply (men plus women) to changes in the wage rate. The aggregate labor supply elasticity is an average of the negative labor supply elasticity of men and the positive labor supply elasticity of women. It is typically found to be close to zero, or even slightly negative (survey of uncompensated wage elasticities summarized in Table 3.5 of Mark R. Killingsworth, Labor Supply, Cambridge University Press, 1983). Because the impact of SFAS 106 on the GNP-PI is larger for higher labor supply elasticities, we set the labor supply elasticity equal to zero rather than slightly negative to guard against understating the impact on the GNP-PI.

Using the values listed above in our baseline calculation leads to an increase of 0.0138% in the private sector price index. For comparison, the back-of-the-envelope calculation for this case leads to an increase of 0.614% in the price index. It is useful to define the "passthrough coefficient" as the increase in the price index according to the model divided by the back-of-the-envelope price increase. In this case the passthrough coefficient is 0.0225 (0.0138% + 0.614%), which indicates that the increase in the private sector price index is only 0.0225 times as large as indicated by the back-of-the-envelope calculation.

Sectors 1 and 2 together comprise the private sector. The macroeconomic model treats the government sector as an independent sector with employment and output determined independently of the private sector. The effect of SFAS 106 on the GNP-PI equals the share of government sector value added in GNP (10.6%)

multiplied by the impact on government sector prices plus the share of private sector value added in GNP (89.4%) multiplied by the increase in private sector prices. Because the government is not subject to SFAS 106, the impact on government sector prices is zero. Therefore, the impact on the GNP-PI is 89.4% of the impact on the private sector price index. Thus the back-of-the-envelope calculation yields a 0.549% (0.894 x 0.614%) increase in the GNP-PI, and the baseline calculation indicates that the GNP-PI will increase by only 0.0124% (0.894 x 0.0138%). The passthrough coefficient for the GNP-PI is 0.0225 which is identical to the passthrough coefficient for the private sector price index.

The conclusion from the baseline calculation is very strong: <u>The impact of SFAS 106 on the GNP-PI is only a tiny fraction of the amount indicated by the back-of-the-envelope calculation</u>.

<u>Resulting Impact of SFAS 106 on TELCO Relative to its Overall Impact on the GNP-PI</u>

To calculate the resulting relative impact of SFAS 106 on the GNP-PI compared to TELCO, we return to the calculation of the Labor Cost Percentage Adjustment. This was based on the assumption that all additional costs will be passed through completely into prices (and into the GNP-PI) and we must now change that assumption to reflect the output of our macroeconomic model.

The model indicates that the GNP-PI will increase by 0.0124%.

Looking first only at the <u>direct</u> effect of SFAS 106 on TELCO, we find that the increase in TELCO's direct labor costs is 6.295%. Thus TELCO's costs will increase:

- by 6.295% of 38.5% of 74.3% of output = 1.8027% of output
  (i.e., by 6.295% of the percent of output represented by TELCO's labor costs)

Thus the GNP-PI would reflect only 0.0124 ÷ 1.8027 or 0.69% of the additional direct costs incurred by TELCO due to SFAS 106.

Additional Macroeconomic Effects of SFAS 106

In addition to the result reported above our macroeconomic model indicates that, in response to the impact of SFAS 106, the wage rate in the national economy could eventually fall in relative terms by 0.926% (i.e., relative to what it would have been in the absence of SFAS 106). To the extent that TELCO could also benefit from a relative reduction in its wage, this could help to offset the increase in its costs due to SFAS 106. If TELCO were able to achieve the full reduction of 0.926% the effect may be calculated as explained below.

SFAS 106 increases TELCO's direct labor costs by	6.295%
If the national wage rate is, in fact, reduced TELCO's direct labor costs are reduced by	.926%
The net increase in TELCO's direct labor costs is	5.369%

Thus TELCO's overall costs would increase

- by 5.369% of 38.5% of 74.3 of output in respect of its own labor costs, *(i.e., by 5.369% of the percent of output represented by TELCO's labor costs)* = 1.5375% of output
- by 0.0124% of 25.7% of output in respect of its suppliers' prices *(i.e., by .0124% of the purchased inputs used by TELCO)* = .0032% of output
- for a total increase of = 1.5406% of output

Thus if TELCO could benefit from a relative wage reduction of .926%, its overall costs would increase by 1.5406% of output instead of the 1.8027% of output calculated earlier. This indicates that macroeconomic effects, including a possible reduction in TELCO's wage rate could finance a percentage of its additional SFAS 106 cost, calculated to be:

$$(1.8027 - 1.5406) \div 1.8027 = 14.53\%$$

Thus the combined effect of the impact of SFAS 106 on the GNP-PI (0.7%) and on other macroeconomic variables including the wage rate (14.5%) would still leave 84.8% of TELCO's additional SFAS 106 costs unrecovered.

IV. SENSITIVITY OF RESULTS

While we have attempted to calculate the results outlined previously in as accurate a manner as possible, it should be obvious that many of the results are subject to variability due to either the uncertainty of the underlying data or the need to make some assumptions about future or unknown factors. In this section we discuss the sensitivity of each of the previously derived values and of the aggregate result to reasonable variation in underlying data and/or assumptions.

The BLI Methodology

Initial Calculation of GNP BLI and TELCO BLI: In calculating GNP BLI and TELCO BLI there were two areas of uncertainty that we analyzed. With respect to the calculation of GNP BLI we utilized average BLIs by industry and then utilized industry weightings derived from the GAO survey to derive a final GNP BLI. Had we, instead, utilized an aggregate employee weighted average based on our data base only we would have derived GNP BLI as .2613 instead of .2568. This would have resulted in <u>increasing</u> the relative impact of SFAS 106 on GNP compared to TELCO from 28.3% to 28.7%. With respect to the calculation of TELCO BLI, the greatest area of uncertainty arose in deciding how to weight the various plans sponsored by each Price Cap LEC. We decided to weight them based on employee counts. We believe this was a conservative approach because in our data base only one set of plan provisions is maintained for each employer. If we assume that where an employer has more than one plan it is the more generous plan which is reported in the data base, then it would be appropriate to utilize <u>only</u> the more generous plans in calculating the TELCO BLI. If we had taken this approach it would have <u>reduced</u> the relative impact of SFAS 106 on GNP compared to TELCO from 28.3% to 27.7%.

Demographic Adjustment - We adjusted for the fact that TELCO will utilize lower rates of turnover than those used by other employers in determining SFAS 106 costs. It is hard to argue that the same pre-retirement withdrawal assumption should be made because TELCO's demographics are themselves the result of lower

turnover rates actually experienced by TELCO. However, if we were to assume the same withdrawal patterns for both TELCO and GNP (while retaining the different demographics), the relative impact of SFAS 106 on GNP compared to TELCO would increase from 28.3% to 34.6%.

The adjustment due to age and past service differences relies on demographic data provided by the separate Price Cap LECs and averaged into a single composite TELCO census having an average age of 41.6 with average past service of 16.6 years. If we were to reduce the age and service to 40.6 and 15.6 respectively, the relative impact of SFAS 106 on GNP compared to TELCO would increase from 28.3% to 29.7%.

A degree of uncertainty is also present in our adjustment due to earlier retirement among TELCO employees. This uncertainty arises in the determination of a national average retirement age assumption. We believe our use of age 63 was a conservative assumption in that the limited data on the subject (Gerontologist Vol. 28, No. 4) seems to indicate a national average retirement age between 63.5 and 64. Furthermore, if as expected, employers in the GNP tend to be aggressive (i.e., optimistic) in setting assumptions for accruing post-retirement liability, it might seem reasonable to utilize an age 64 assumption. If an age 64 assumption had been used the relative impact of SFAS 106 on GNP compared to TELCO would have been reduced from 28.3% to 25.6%.

Current Retiree Adjustment - The calculation of this adjustment is predicated on an average claim rate per retiree for the GNP of $1,802 and a ratio of retirees to covered actives of .1726. The claim rate was derived by taking the 1990 rate of $1,514 as reported in the Hewitt Associates Survey of Retiree Medical Benefits and increasing it by 19% for medical trend inflation. The ratio of retirees to covered actives was derived from the GAO study. While we believe 19% to be a realistic assumption for medical inflation, we recognize that the national average could actually have increased by more. If we assume a 25% increase in the average claim, to $1,892, and further assume that the actual ratio of retirees to actives has increased to .2 (from .1726) the relative impact of SFAS 106 on GNP compared to TELCO would increase from 28.3% to 29.2%.

Also, inherent in this Adjustment is the assumption that the demography of the current TELCO retiree is identical to that of the GNP. In fact, this too is a conservative assumption because TELCO employees generally retire at younger ages than the national average and thus the liabilities for TELCO will tend to be higher on this account than for the retirees in the national economy. If, however, we were to assume that retirees at TELCO were somewhat <u>older</u> than those in the GNP and hence generated SFAS 106 cost per $1 of retiree claim cost that was 10% less than that for the GNP, the relative impact of SFAS 106 on GNP compared to TELCO would only increase from 28.3% to 28.8%.

Pre-funding Adjustment - This adjustment looked at the effect of TELCO's existing pre-funding of post retirement medical benefits as compared with no pre-funding. By doing this we made the conservative assumption that there is no pre-funding in the GNP. If we assume there is pre-funding in the GNP to the extent that assets equal to one years claims have accumulated, and that annual contributions to such funds amount to claims plus 10%, the relative impact of SFAS 106 on GNP compared to TELCO would reduce from 28.3% to 26.2%.

Non-covered Employees Adjustment - This adjustment comes from the GAO survey which determined that 30.7 million private sector employees in the U.S. may eventually qualify to receive benefits under their employer's post-retirement medical plan. According to the GAO this estimate is subject to some sampling error and could be as high as 37.5 million or as low as 23.9 million. At the extremes this would cause the relative impact of SFAS 106 on GNP compared to TELCO to vary from 22.4% to 34.1% as compared to our determination of 28.3%.

Per Unit Labor Cost Adjustment - In calculating Per Unit Labor Cost Adjustment, allocated compensation and headcount were used. No sensitivity analysis was performed on this Adjustment because of the validity of the data used and the straightforward nature of the calculation.

Labor Cost Percentage Adjustment - In calculating the Labor Cost Percentage Adjustment we assumed that TELCO's suppliers were like the average company in the GNP. In particular we assumed that their labor costs were 64.27% of output and that their increase in labor costs was 13.60% of the corresponding increase for

TELCO. Had we assumed that they had no increase in labor costs due to SFAS 106 the relative impact of SFAS 106 on GNP compared with TELCO would have been 30.6% instead of 28.3%; had we assumed they would experience the same increase due to SFAS 106 as TELCO the relative impact would have been 19.3% instead of 28.3%.

The Macroeconomic Model

How robust is the conclusion drawn from the macroeconomic model in Section III? To answer this question we have examined the effect of varying each of the baseline parameters that constitute the major inputs to the model.

We indicated earlier that we believe the price elasticity of demand of 1.5 is probably too high and thus guards against understating the effect on the GNP-PI. Nonetheless we will show the effect of increasing the value of this parameter to 3.

For the economy as a whole labor costs are 64% of output and our baseline calculations assume that the same is true in each of the two sectors of our macroeconomic model. To test sensitivity we will show the results if, in each sector in turn, labor costs were as low as 50% of output or as high as 78% of output.

We used a fraction of labor employed in sector 2 of 0.32. This was based on the same numbers from the GAO survey as were used for the Non-Covered Employees Adjustment (30.7 million out of 95.8 million private sector employees). As indicated on page 36 the GAO calculated that due to possible sampling error the figure of 30.7 million could be as high as 37.5 million (39.1% of 95.8 million) or as low as 23.9 million (24.9% of 95.8 million). We will show the effect of using fractions of labor employed in sector 2 of 0.24 and 0.40.

As noted earlier, the direct impact of SFAS 106 on labor costs in sector 2 was taken to be +3%. The corresponding impact on TELCO labor costs is +6.3% and the baseline value of 3% is derived using the Adjustment factors in Section II as

$$
\begin{aligned}
& 6.3 \times (3) \times (4) \times (5) \times (6) \times (8) \\
= \; & 6.3 \times .5850 \times .5438 \times .9287 \times 1.313 \times 1.3062 \\
= \; & \underline{3.18}
\end{aligned}
$$

There is thus an appropriate consistency in the baseline value used for this parameter. Nonetheless we will show the results of varying this value over a wide range (from 2% to 5%) while keeping the TELCO value constant at 6.3%.

Finally we will examine the sensitivity of our results to variations in the value used for labor supply elasticity. We believe, by setting the labor supply elasticity equal to zero rather than slightly negative, that already we have guarded against understating the impact on the GNP-PI. Nonetheless we will show the effect of using positive values of 0.1, 0.2, and 0.3 for the labor supply elasticity.

The table that follows shows the results obtained by changing each of the 6 baseline parameters, one at a time. In each of the rows of the table, the values of 5 of the 6 inputs to the model are the same as in the baseline calculation listed above. The input shown in the table is the one input that is changed from the baseline calculation.

Sensitivity Analysis

	Effect on GNP Price Index	Passthrough Coefficient
Price elasticity of demand = 3	0.0227%	0.041
Labor share in total cost, sector 1 = 0.50	0.0099%	0.021
Labor share in total cost, sector 1 = 0.78	0.0145%	0.023
Labor share in total cost, sector 2 = 0.50	0.0103%	0.020
Labor share in total cost, sector 2 = 0.78	0.0141%	0.024
Fraction of labor employed in sector 2 = 0.24	0.0104%	0.025
Fraction of labor employed in sector 2 = 0.40	0.0137%	0.020
Direct impact on labor costs in sector 2 = +2%	0.0056%	0.015
Direct impact on labor costs in sector 2 = +5%	0.0336%	0.037
Labor supply elasticity = 0.1	0.0642%	0.117
Labor supply elasticity = 0.2	0.1136%	0.205
Labor supply elasticity = 0.3	0.1579%	0.287

The Overall Results

We have concluded that the overall impact of SFAS 106 on the GNP-PI will reflect only 0.7% of the SFAS 106 costs incurred by TELCO. Separately we have calculated that if TELCO were able to benefit from the same relative reduction in its wage rate as will be experienced in the economy as a whole this would finance a further 14.5% of its additional SFAS 106 costs. This would leave 84.8% of TELCO's additional SFAS 106 costs to be met from other sources. We now show the sensitivity of the overall results to the interaction of the variability of the BLI Methodology and the variability of the inputs to the Macroeconomic Model.

The baseline inputs to the model include the assumption that the direct impact of SFAS 106 on labor costs in sector 2 is +3%. We have shown the effect on the model of reducing this figure to +2% or increasing it to +5% with other inputs remaining unchanged. The value of 3% (more precisely 3.18%) corresponds to a SFAS 106 Cost Increase Ratio of 28.3% (page 9). The values of 2% and 5% correspond to Cost Increase Ratios of 17.8% and 44.5% respectively: we believe this range adequately encompasses the likely variations in this ratio. To demonstrate the interactive effect of possible variability we have produced three sets of results, one for each of the values 2%, 3% and 5%. The following schedule shows for each of these values the results if each of the other inputs is set at the baseline values followed by the results if each of the other inputs is varied alone as indicated.

PERCENTAGE OF TELCO'S ADDITIONAL SFAS 106 COSTS:

(a) reflected in the GNP-PI,
(b) financed by potential reduction in relative wage rate and
(c) to be met from other sources

If Additional SFAS 106 cost of Average Employer With SFAS 106 Liabilities is

Input to Macroeconomic Model (All Baseline except as indicated)	2%			3%			5%		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Baseline	0.3	9.9	89.8	0.7	14.5	84.8	1.9	23.4	74.7
Price elasticity of demand = 3	0.6	9.6	89.8	1.3	14.1	84.6	3.4	22.3	74.3
Labor share in total cost, sector 1 = 0.50	0.2	9.5	90.3	0.6	13.9	85.5	1.5	22.6	75.9
Labor share in total cost, sector 1 = 0.78	0.4	11.4	88.2	0.8	16.8	82.4	2.2	27.2	70.6
Labor share in total cost, sector 2 = 0.50	0.3	10.4	89.3	0.6	15.5	83.9	1.6	25.0	73.4
Labor share in total cost, sector 2 = 0.78	0.4	8.6	91.0	0.8	12.8	86.4	2.1	20.6	77.3
Fraction of labor employed in sector 2 = 0.24	0.3	7.3	92.4	0.6	10.9	88.5	1.6	17.5	80.9
Fraction of labor employed in sector 2 = 0.40	0.3	12.4	87.3	0.8	18.2	81.0	2.1	29.4	68.5
Labor supply elasticity = 0.1	2.2	8.4	89.4	3.6	12.3	84.1	6.6	19.9	73.5
Labor supply elasticity = 0.2	4.0	7.1	88.9	6.2	10.4	83.4	11.0	16.6	72.4
Labor supply elasticity = 0.3	5.7	5.8	88.5	8.8	8.4	82.8	15.1	13.6	71.3

Other Factors

In performing this analysis there were two factors that simply could not be quantified due to lack of any relevant data. First of all as can be seen from Appendix A, our data base from which the GNP BLI was calculated included almost no employees working for employers with fewer than 500 employees. We believe that this tends to overstate the GNP BLI, because such limited data as exists suggests that the smaller the employer the less generous the benefits, but we cannot make a definitive statement to that effect. Secondly our analysis only incorporated the impact of SFAS 106 with respect to employer sponsored post-retirement medical plans. SFAS 106 also applies to Life and Dental plans as well as certain other miscellaneous benefits (e.g., subsidized telephone rates for retirees). As noted, there is simply no accessible data on the prevalence and magnitude of these plans in the GNP. We can, however, make two relevant observations:

- In general, post-retirement medical plans generate far greater SFAS 106 cost than post-retirement life, dental and other plans.

- If an employer does not sponsor a post-retirement medical plan it is almost certain that it does not provide any other post-retirement benefit coverage (other than pension).

Based on the above and the fact that only 26.8% of employees nationally will get post-retirement medical benefits subject to SFAS 106, we conclude that the inclusion of Life, Dental, and other non-pension benefits in the analysis had such data been available would not have had a material impact on the results.

Conclusion

Remembering that at each stage of our calculation process we have sought, when faced with a choice, to adopt a conservative stance and reviewing the results of this sensitivity analysis, we feel confident that our conclusions represent a reasonably accurate reflection of what is likely to happen in practice.

V. APPENDIX A - SUMMARY OF DATA

The tables, charts, and graphs on the following pages summarize the data utilized in this analysis. Included are the following:

- Summary of Godwins Company Data Base.
- Summary of BLI calculations.
- Comparison of TELCO and the GNP with respect to Demographic, Economic, and Actuarial factors.
- Summary of GAO findings on National Prevalence of Post-Retirement Medical Plans.

UNITED STATES TELEPHONE ASSOCIATION
POST-RETIREMENT HEALTH CARE STUDY
SUMMARY OF GODWINS DATA BASE

I. **Companies with Post-Retirement Medical Plan:**

Active Lives:	1 - 24		25 - 99		100 - 499		500 +		Total	
	# COS	# EES	# COS	# EES	# COS	# EES	# COS	# EES	# COS	# EES
Mining & Manuf.	0	0	2	135	13	5,095	431	11,124,456	446	11,129,686
Construction	0	0	0	0	0	0	6	94,893	6	94,893
Transportation	0	0	0	0	0	0	78	1,472,589	78	1,472,589
Retail	0	0	0	0	1	185	30	1,883,869	31	1,884,054
Finance/Insur.	0	0	2	115	13	4,078	207	3,545,526	222	3,549,719
Consumer Serv.	0	0	1	50	3	1,002	43	779,350	47	780,402
TOTAL	0	0	5	300	30	10,360	795	18,900,683	830	18,911,343

II. **Companies with No Post-Retirement Medical Plan:**

Active Lives:	1 - 24		25 - 99		100 - 499		500 +		Total	
	# COS	# EES	# COS	# EES	# COS	# EES	# COS	# EES	# COS	# EES
Mining & Manuf.	6	63	11	614	22	5,287	86	893,483	125	899,447
Construction	1	9	0	0	1	160	5	23,153	7	23,322
Transportation	1	19	0	0	5	1,065	13	77,332	19	78,416
Retail	0	0	0	0	3	760	15	453,510	18	454,270
Finance/Insur.	0	0	2	65	3	740	28	168,205	33	169,010
Consumer Serv.	3	36	1	30	6	1,395	29	484,552	39	486,013
TOTAL	11	127	14	709	40	9,407	176	2,100,235	241	2,110,478

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Post-Retirement Health Care Study
Summary of BLIs
Based on Godwins' Database

Average BLI Weighted by Number of Employees

Industry	Pre Age 65	Post Age 65	No. of Companies	No. of Employees
Agriculture, Mining, Manufacture & Wholesale Trade	0.7232	0.2340	446	11,129,686
Construction	0.7758	0.0604	6	94,893
Transportation & Utilities	0.7974	0.2643	78	1,472,589
Retail Trade	0.4730	0.0603	31	1,884,054
Finance & Insurance	0.6721	0.1926	222	3,549,719
Consumer Services	0.5771	0.1267	47	780,402
TOTAL	0.6887	0.2060	830	18,911,343

Company Size	Pre Age 65	Post Age 65	No. of Companies	No. of Employees
1-24 Employees			0	0
25-99 Employees	0.4850	0.1476	5	300
100-499 Employees	0.6482	0.1787	30	10,360
500+ Employees	0.6887	0.2060	795	18,900,683
TOTAL	0.6887	0.2060	830	18,911,343

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Post-Retirement Health Care Study
Comparison of TELCO Demographic and Economic Structures
and Actuarial Basis to National Averages

Demographic

	TELCO	Employers in GNP
Total Active Employees	613,193	114,400,000[1]
Active Employees covered by Retiree Medical Plans subject to SFAS 106	613,193	30,700,000[1]
Retirees covered by Medical Plans	294,482	5,300,000[1]
Average Age of Actives	41.6	38.2[2]
Average Service of Actives	16.6	8.5[3]

Economic

Compensation Per Employee	$38,533	$29,500[4]
Average Claim per Retiree	$3,075	$1,802[5]
Labor Cost as a % of Value Added	38.5%[6]	64.3%[4]
Value Added as a % of Output	74.3%[6]	100%
Accumulated VEBA assets	$1,258.8 million	N/A
Annual VEBA contributions in excess of claims	300.3 million	N/A

Actuarial

Pre-Retirement Turnover	T-2[7]	T-6[8]
Retirement Age	Table[7]	63[9]
1991 SFAS 106 expense	$2,693.1 million	N/A

1. Source - U.S. General Accounting Office
2. Source - U.S. Dept. of Labor, Bureau of Labor Statistics
3. Source - U.S. Bureau of the Census Current Population Reports
4. Source - U.S. Dept. of Commerce, Bureau of Economic Analysis Survey of Current Business
5. Source - 1990 Hewitt Associates Survey of Retiree Medical Benefits brought forward to 1991 with 19% trend
6. Source - 1990 ARMIS 43-02's for Price Cap LECs
7. See tables on page 48 for more detail
8. Source - Midpoint of Standard Tables used in generally accepted Actuarial Practice
   Source - The Gerontologist Vol. 28 No. 4

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Post-Retirement Health Care Study

TELCO Retirement Rates

Age	Rate of Retirement
55-61	9.54%
62	25.00%
63	10.00%
64	10.00%
65	67.00%
66-69	10.00%
70	100.00%

Comparison of TELCO Turnover Rates vs. "Standard" Rates

Probability of Remaining in Service Until Age 55

Table	T-1	TELCO T-2	GNP T-6	T-11
Current Age				
30	.743	.505	.250	.013
35	.873	.650	.363	.047
40	.958	.811	.510	.141
45	.995	.935	.687	.344
50	1.000	.992	.871	.664

Notes

1. Standard Tables in use range from T-1 (most conservative) through T-11 (least conservative). T-6 represents mid-point of range.
2. TELCO utilizes customized assumption most closely approximated by T-2.
3. Supporting evidence for low incidence of turnover at TELCO relative to national average can be seen by the higher average age and past service of TELCO employees relative to average age and service of national working population.